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SYSTEM AND METHOD FOR TRELLIS DECODING IN A
MULTI-PAIR TRANSCEIVER SYSTEM

5 ABSTRACT OF THE DISCLOSURE

A method and a system for decoding information signals encoded in accordance with a multi-state encoding scheme and transmitted over a multi-dimensional transmission channel by computing a distance of a received word from a codeword. One-
10 dimensional (1D) input signals are processed in a pair of symbol decoders, implemented as look-up tables, to produce a pair of 1D errors, with each representing a distance metric between the input signal and a symbol in one of two disjoint symbol-subsets. The 1D errors are combined based on the multi-state encoding
15 scheme in order to produce a set of multi-dimensional error terms. Each of the multi-dimensional error terms corresponds to a distance between a received word and a nearest codeword.

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